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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,826	06/01/2004	Tishu Cai	MONS:150US	3825
73905 7590 12/11/2007 SONNENSCHN NATH & ROSENTHAL LLP P.O. BOX 061080 SOUTH WACKER DRIVE STATION, SEARS TOWER CHICAGO, IL 60606			EXAMINER ZHENG, LI	
			ART UNIT 1638	PAPER NUMBER
			MAIL DATE 12/11/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/709,826	CAI ET AL.	
	Examiner	Art Unit	
	Li Zheng	1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-16 and 18-30 is/are pending in the application.
- 4a) Of the above claim(s) 15,16 and 18-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-2, 4-14 and 30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-2, 4-16, 18-30 are pending.
2. Applicant's amendments to claims 1, 4-5, 15, 18-19, 23, 25 and 27-28, as well as cancellation of claims 3 and 17 filed on 09/26/2007 are acknowledged. However, due to amendment of claim 15, claims 15-28 are now considered non-elected subject matter since different cereal species in claim 15 were not present in original claims and would have been restricted in original restriction requirement. As a result, claims 15-16 and 18-29 are withdrawn and claims 1-2, 4-14 and 30 are currently examined on the merits.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. All the rejection of claims 3 and 17 are withdrawn due to claim cancellation.
5. The rejection of claims 1, 6-10, 14-16, 20-24 and 28 under U.S.C 102 (b) is withdrawn due to claim amendment.

Claim Objections

6. Claim 5 is objected because it is an improper dependent claim due to the recitation of "about 1-14 days".

Claim Rejections - 35 USC § 112

7. Claims 1-2, 4-14 and 30 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for Agrobacterium-mediated transformation for maize using immature embryo, does not reasonably provide enablement for all transformation methods or all explants. The specification does not enable any person skilled in the art to which it pertains, or other bacterium inoculation processes contemplated in the specification with which it is most nearly connected, to make/use the invention commensurate in scope with these claims, for the reasons of record stated in the Office action mailed June 27, 2007. Applicants traverse in the paper filed September 26, 2007. Applicants' arguments have been fully considered but were not found persuasive.

Applicants again argue that both transformation methods and the explants chosen are irrelevant to the invention because the effect is found to occur after contact of an explant with exogenous DNA (response, the paragraph bridging page 7, 2nd paragraph). Applicants further use submitted literatures to support that the plant transformation using different methods and explants are well known in the art, that numerous explant tissue types were utilized in the different cereal species and that transformation was performed at overlapping temperature range of 20-27 °C (response,

page 7, 2nd paragraph). However, the office maintains that both transformation methods and the explants chosen are relevant. Although it is true that the plant transformation using different methods and explants are well known in the art, the effect of increased temperature during selection on the transformation efficiency for various transformation methods using various explants are not well known in the art. In fact, Applicants admit that at the time of the instant application was not regarded as an important parameter for investigation in studies of transformation efficiency. Therefore, little, if at all, is known about the effect of increased temperature during selection on the transformation efficiency for plant transformation procedures other than *Agrobacterium*-mediated transformation for maize using immature embryo.

Applicants further argue that the selection of transformed cells takes place after a nucleotide sequence is inserted into plant cells therefore the manner in which the nucleotide sequence is inserted (response, the paragraph bridging page 7, 2nd paragraph). The office again disagrees. First, different explants may have different preferred temperature for selection. Second, during transformation, the explants are subject to different treatments including chemical (e.g. PEG mediated), mechanical (e.g. bombardment) and biological (*Agrobacterium*-mediated) treatments, therefore they would show different sensitivity to the elevated temperature. Further, Applicants admit that transformation was performed at a range of temperature of 20-27 °C (response, page 7, 2nd paragraph). Given the state of the prior art showing the differences of selection temperatures used for various explants, organisms and transformation

methods, and Applicants' own admission that the increase in transformation frequency upon selection at higher temperature is unexpected, undue experimentation would be required to determine the effect of increased selection temperature on the transformation efficiency for any organism using any explant and any transformation method.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-2, 4-14 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frame et al. (2002, Plant Physiology 129:13-22) in view of Zhao et al. (2001, Molecular Breeding 8:323-333) and Hiei et al. (US Patent No. 6,329,571).

The claims and rejections are discussed in previous office action mailed 6/27/07 and 1/9/07. The current claim amendment requires temperature for selection step being between 30 °C to about 34 °C and cereal plants being wheat, rice, barley or sorghum..

The teaching of Frame et al. in view of Zhao et al. do not teach selection temperature being from 30 °C to about 34 °C or cereal plants being wheat, rice, barley or sorghum.

Hiei et al. teach that for rice transformation, the immature embryos were selected on selection media at 30 °C for 2 to 3 weeks (column 7, lines 31-49)

Therefore it would have been obvious to further optimize the selection temperature for the maize transformation method of Frame et al. in view of Zhao et al. and test transformation efficiency at higher temperature such as 30 °C as taught by Hiei et al.. One would have been motivated to optimize the selection temperature given the fact that there is a broad range of selection temperature used for cereal transformation and it is highly desirable to obtain the optimal selection temperature that results in highest transformation efficiency. Even for those embodiments with a temperature higher than 30 °C, the limitations regarding the temperature and time length for selection are still considered optimization of process parameters which would not confer patentable distinction to the claimed invention.

Conclusion

No claim is allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP §

706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

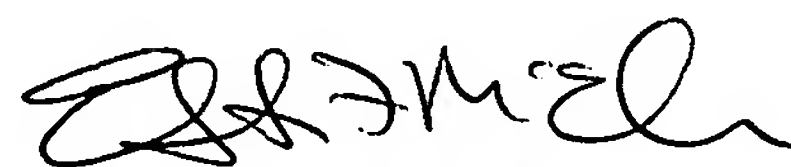
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li Zheng whose telephone number is 571-272-8031. The examiner can normally be reached on Monday through Friday 9:00 AM - 5:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on 571-272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



ELIZABETH MCELWAIN
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